ABSTRACT

A drill string design methodology which utilizes a "comparative approach" in the selection of drill string components. The comparative approach in accordance with the present invention can lead to dramatic reductions in fatigue-related problems. In accordance with one aspect of the invention, a method is provided for establishing objective criteria for evaluating individual components of well construction equipment to determine the preferred component or collection of components to be used from the selection of components available. A plurality of quantifiable design parameters relevant to the issues of fatigue damage and failure of drill string components are defined, and an assessment of each of these parameters is made for two or more candidate components being considered for inclusion in the drill string. A comparison is then made between the candidate components' ratings, and a decision to include or exclude a candidate component is made based upon the results of such comparison.